

CLAIMS

1. A filtering device comprising: a bowl having a discharging port on one side thereof and an opening portion, on the other side thereof, that is communicated with said discharging port; at least one piece of filter plate having retained therein or secured thereto a separation membrane permitting a raw unprocessed liquid to filter therethrough and having openings that permit said raw unprocessed liquid or a filtered liquid to pass therethrough, said at least one piece of filter plate being accommodated within said opening portion of said bowl; a head having on one side thereof a protruding pressing portion that presses said filter plate from one side thereof to prevent said filtered liquid from being leaked and having on the other side thereof a raw unprocessed liquid supplying port; and pressing means that presses said head toward said bowl.

2. The filtering device according to claim 1, wherein said pressing means is a female screw and male screw that are formed in said bowl and said head and are brought into screw engagement with each other and that are rotated relatively to each other to perform said pressing.

3. The filtering device according to claim 1 or 2, wherein said filter plate that has had said separation membrane retained therein or secured thereto is loaded in such a manner that more than one said filter plate is stacked one over another.

4. A filtering device comprising; a bowl having a discharging port on one side thereof and an opening portion,

on the other side thereof, that is communicated with said discharging port; at least one piece of filter plate having retained therein or secured thereto a separation membrane permitting a raw unprocessed liquid to filter therethrough and having openings that permit said raw unprocessed liquid or a filtered liquid to pass therethrough, said at least one piece of filter plate being accommodated within said opening portion of said bowl; a head having on one side thereof a protruding pressing portion that presses said filter plate from one side thereof to prevent said filtered liquid from being leaked and having on the other side thereof a raw unprocessed liquid supplying port; and a locking nut that presses said head toward said bowl in their axial direction.

5. The filtering device according to claim 4, wherein each of said bowl and said locking nut has provided thereon screw portions that are engaged with each other and, by rotating each of them relatively to each other to press said head toward said bowl.

6. The filtering device according to claim 4 or 5, wherein said filter plate that has had said separation membrane retained therein or secured thereto is loaded in such a manner that more than one said filter plate is stacked one over another.

7. The filtering device according to claim 2 or 5, wherein on the outside surface on one side of said bowl there is provided a plate-like protrusion which a finger is to be engaged with.

8. The filtering device according to claim 2, wherein on the outside surface on the other side of said head there is provided

a plate-like protrusion which a finger is to be engaged with.

9. The filtering device according to claim 4 or 5, wherein said locking nut has finger-engaged handles at three positions of its outer-peripheral portion.

10. The filtering device according to claim 1 or 4, wherein said filter plate has a circumferential protrusion, having a prescribed height, on a bottom surface thereof and, on the other hand, an inner bottom of said opening portion of said bowl has a circumferential groove that receives said circumferential protrusion, thereby pressing said filter plate against said bowl to thereby perform sealing.

11. The filtering device according to claim 1 or 4, wherein a press ring having on an underside thereof at least one line of concentric protrusion is positioned on an upper surface of said at least one filter plate; on the upper surface side of said filter plate there is provided a first flat surface extending over the entire circumference; and said concentric protrusion of said press ring is pressed onto said first flat surface of said filter plate to thereby perform sealing.

12. The filtering device according to claim 11, wherein said press ring has a second flat surface on an upper surface side thereof; and onto said second flat surface there is pressed a circumferential protrusion, having a prescribed height, which is provided on a lower surface side of said filter plate disposed on an upper side of said second flat surface, thereby seal is effected, or said protruding pressing portion of said head is pressed via an O-ring, thereby seal is effected.

13. The filtering device according to claim 1 or 4, wherein on an outer periphery of said filter plate there is provided a finger-engaged tab; and, correspondingly thereto, said bowl has provided therein a guide groove for reception therein of said finger-engaged tab.

14. The filtering device according to claim 11 or 12, wherein said filter plate has a first peripheral edge portion that surrounds said first flat surface; and said press ring has a second peripheral edge portion that surrounds said second flat surface, whereby, when said press ring has been accommodated into a recessed press insertion portion of said filter plate, the device is constructed so that said first and second peripheral edge portion may be fused to each other.